

In the claims:

Please amend the claim in accordance with the following listing:

1-21. (cancelled)

22.(New) A controlled motion actuator system, comprising:

a movable element;

at least a first wire whose effective length changes with twist applied thereto, said at least first wire having one end attached to said movable element;

a first rotary motion shaft attached to a second end of said at least first wire, such that rotation of said shaft generates a twist in said at least first wire, thereby changing its effective length and adjusting the position of said moveable element; and

a controller for providing input control signals to rotate said first rotary motion shaft such that said position of said movable element is determined in accordance with said controller.

23.(New) A controlled motion actuator system according to claim 22 and further comprising:

a second wire having one end thereof attached to said movable element in a sector generally opposite to the sector in which said at least first wire is attached; and

a second rotary motion shaft attached to a second end of said second wire such that rotation of said second shaft generates a twist in said second wire, thereby changing the effective length of said second wire,

wherein the position of said movable element is determined by the cooperative action of said twists applied to said at least first wire and to said second wire.

24.(New) A controlled motion actuator system according to claim 23 and wherein said twists are applied to said at least first wire and said second wire are in opposite directions.

25.(New) A controlled motion actuator system according to claim 24 and wherein said twists are of opposite direction are of equal magnitude.

26. (New) A controlled motion actuator system according to claim 25 and wherein said twists are operative to increase the linearity of motion of said movable element as a function of controller inputs, compared to the linearity of the change in effective length of either of said at least first and said second twisted wires as a function of applied twist angle of rotation.

27. (New) A controlled motion actuator system according to claim 21 and further comprising at least two additional wires, each having one end thereof attached to said movable element in sectors different to that in which said at least first wire is attached, and whose effective lengths are adjusted by twists applied thereto, and wherein the position of said movable element is determined by the cooperative action of twists applied to said at least first wire and to said at least two additional wires.

28. (New) A controlled motion actuator system according to claim 27 and wherein said at least two additional wires are such that the position of said movable element is determined in two dimensions.

29. (New) A controlled motion actuator system according to claim 21 and further comprising a spring having one end thereof attached to said movable element in a sector generally opposite to the sector in which said at least first wire is attached, and wherein the position of said movable element is determined by the cooperative action of forces applied thereto by said spring and a twist applied to said at least first wire.

30. (New) A controlled motion actuator system according to claim 22 and further comprising:

a second wire whose effective length changes with twist applied thereto, and having one end thereof attached to said movable element in a second sector different from the sector in which said at least first wire is attached; and

a spring having one end thereof attached to said movable element in a third sector generally opposite to those sectors where said at least first wire and said second wire are attached,

wherein the position of said movable element is determined by the cooperative action of twists applied to said at least first and to said second wires operating against the action of said spring.

31.(New) A controlled motion actuator system according to claim 21 and wherein said position of said movable element is reached by a predetermined motion path of said moveable element, and wherein said motion path is predetermined by said controller.

32.(New) A controlled motion actuator system according to claim 21 and wherein said first rotary motion shaft is driven by an electric motor.

33.(New) A controlled motion actuator system according to claim 23 and wherein a least one of said rotary motion shafts is driven by an electric motor.

34.(New) A controlled motion actuator system according to claim 32 wherein said electric motor is a stepping motor.

35.(New) A controlled motion actuator system according to claim 33 wherein said electric motor is a stepping motor.

36.(New) A method of providing controlled motion to a moveable element, comprising the steps of:

providing a movable element whose position is to be controlled;

attaching to said movable element one end of at least a first wire whose effective length changes with twist applied thereto;

attaching at least a first rotary motion shaft to a second end of said at least a first wire, the rotation of said shaft being controlled by input signals from a controller; and

applying a controlled twist to said first rotary motion shaft at said second end of said at least first wire, such that the position of said moveable element is adjusted in accordance with said controller.

37.(New) The method of claim 36 and further comprising the steps of:

attaching to said movable element a second wire whose effective length changes with twist applied thereto, said second wire having one end thereof attached to said movable element in a sector generally opposite to the sector in which said at least first wire is attached;

attaching a second rotary motion shaft to a second end of said second wire, the rotation of said shaft being controlled by a controller; and

applying a controlled twist to said second rotary motion shaft at said second end of said second wire, such that the position of said movable element is determined by the cooperative action of twists applied through said rotary motion shafts to said at least first wire and to said second wire.

38.(New) The method of claim 37 and wherein said twist applied to said at least first wire and said twist applied to said second wire are in opposite directions.

39.(New) The method of claim 38 and wherein said twists of opposite direction are of equal magnitude.

40.(New) The method of claim 39 and wherein said twists are operative to increase the linearity of motion of said movable element as a function of controller inputs, compared to the linearity of the change in effective length of either of said at least first and said second twisted wires as a function of applied twist angle of rotation.

41.(New) The method of claim 37 and further comprising the steps of:

attaching to said movable element in at least one sector generally opposed to those sectors where said at least first wire and said second wire are attached, a first end of at least one additional wire whose effective length changes with twist applied thereto; and

applying a twist to a second end of said at least one additional wire,

wherein said twists applied to said at least first wire, to said second wire, and to said at least one additional wire are adjusted to position said movable element in at least two dimensions.

42.(New) The method of claim 41 and wherein the magnitude and direction of said twists are such as to increase the linearity of motion of said movable element as a function of said controller inputs, compared to the linearity of the change in effective length of any of said at least first, said second and said at least one additional wire as a function of twist angle of rotation applied to any of them.